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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,694	06/20/2007	Angelo D'Arrigo	78857.105667	9542

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EXAMINER	
GORDON, BRYAN P	

ART UNIT	PAPER NUMBER
2837	

NOTIFICATION DATE	DELIVERY MODE
04/14/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

AustinUSPTO@kslaw.com
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Office Action Summary	Application No.	Applicant(s)	
	10/596,694	D'ARRIGO, ANGELO	
	Examiner	Art Unit	
	BRYAN P. GORDON	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 February 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) *8-9* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 10-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 June 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected of Figure A as shown below

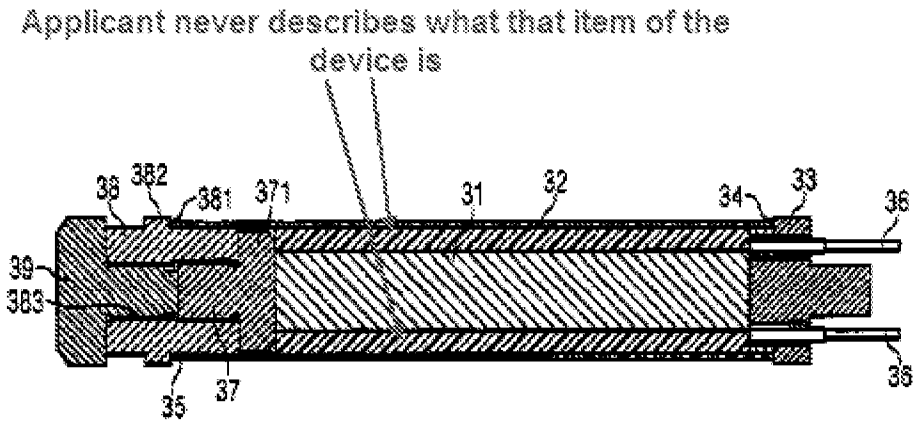

Figure A

2. Perhaps an explanation of what the items pointed to in the Figure could help in the prosecution of the case. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after

the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The amendment filed 05 February 2010 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: Claims 1 and 10 have been amended to say the pretensioning being supported by the tube-shaped body and pretensions the piezoelectric actuator by physically compressing the piezoelectric actuator but not the tube spring. The examiner does not see where in the specification it mentions the tube spring not be compressed by the pretensioning means.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The applicant claims a means for pretensioning the

piezoelectric actuator. In paragraph 0031 states the tube spring upholds the pretension the piezoelectric actuator. Paragraph 0035 also states that a bolt 39 is screwed into the thread 383 a pretension force is exerted on the piezoelectric actuator 31 via the body 37. The examiner wonders how a pretension force is provided by the bolt. To the examiner the tightening of the bolt would be a compressive force. Secondly, is the means for pretensioning the piezoelectric actuator the tube-shaped body or the tube spring? When does the piezoelectric actuator ever lengthen? It appears the tube spring stresses the piezoelectric actuator. It does not appear to the examiner that a pretension force is applied and instead it appears a compressive force. Lastly, how do you pretension the piezoelectric actuator by physically compressing it? It seems to the examiner if you are compressing the piezoelectric actuator you are not pretensioning it. Did the applicant mean to claim a compressive force instead of pretension? Clarification is required. For the sake of examination the examiner is treating the pretensioning means as the tube spring.

6. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In paragraph 0031 states the tube spring upholds the pretension the piezoelectric actuator. Paragraph 0035 also states that a bolt 39 is screwed into the thread 383 a pretension force is exerted on the piezoelectric actuator 31 via the body 37. The examiner wonders how a pretension force is provided by the bolt. To the examiner the tightening of the bolt would be a compressive force. It appears the tube spring stresses the piezoelectric actuator. It does not appear to the

examiner that a pretension force is applied and instead it appears a compressive force. Lastly, how do you pretension the piezoelectric actuator by physically compressing it? It seems to the examiner if you are compressing the piezoelectric actuator you are not pretensioning it. Did the applicant mean to claim a compressive force instead of pretension? Clarification is required

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 4, 10 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Shen (US PN 6,499,471).

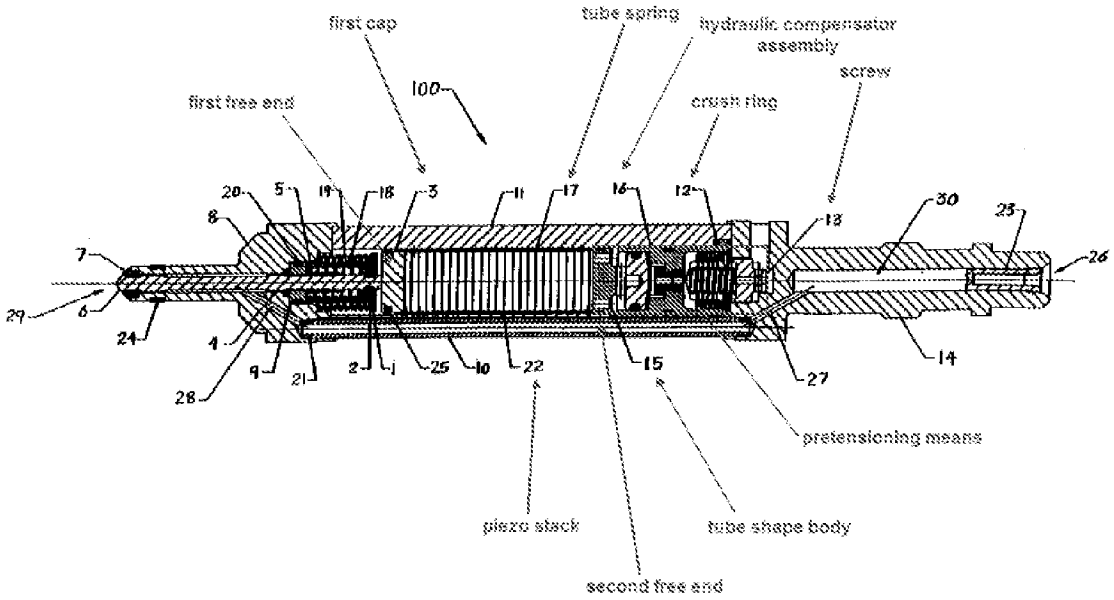

Figure B

9. Considering claim 1, Shen (Figure B) teaches a piezoelectric actuator unit comprising: a tube spring (17); a piezoelectric actuator (22), that is inserted into the tube spring, a first cap (3), that is connected to the tube spring at a first free end (See Figure A above) of the tube spring and which is adjoined by the piezoelectric actuator (22), a tube-shaped body (15) that is connected to the tube spring by joining and is arranged in the area of a second free end (see Figure A), and a means for pretensioning the piezoelectric actuator after the tube spring (17) is connected to the first cap (3) and the tube-shaped body (15) (col. 3 lines 7-15, the device is already together therefore all the parts are connected) the means for pretensioning being supported by the tube-shaped body (col. 5 lines 52-54), and pretensions the piezoelectric actuator (col. 5 lines 49-57) by physically compressing the piezoelectric actuator (22) but not the tube spring.

10. Considering claims 4 and 13, Shen (Figure B) teaches a thread in the tube-shaped body and wherein the pretensioning means is a screw (13) that is screwed into the thread.

11. Considering claim 10, Shen (Figures B) Shen (Figure B) teaches a piezoelectric actuator unit comprising: a tube spring (17); a piezoelectric actuator (22), that is inserted into the tube spring, a first cap (3), that is connected to the tube spring at a first free end (See Figure A above) of the tube spring and which is adjoined by the piezoelectric actuator (22), a tube-shaped body (15) that is connected to the tube spring by joining and is arranged in the area of a second free end (see Figure A), and a means for pretensioning the piezoelectric actuator after the tube spring (17) is connected to the

first cap (3) and the tube-shaped body (15) (col. 3 lines 7-15, the device is already together therefore all the parts are connected) a piezoelectric actuator pretensioning device supported by the tube-shaped body (17), the piezoelectric actuator pretensioning device configured to pretension the piezoelectric actuator (col. 5 lines 49-57), after the tube spring is connected to the first cap and the tube-shaped body (col. 5 lines 52-54), by physically compressing the piezoelectric actuator (22) but not the tube spring.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 2-3, 5-7, 11-12 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shen (US PN 6,499,471) and in view of Mattes (US PN 6,326,717).

15. Considering claims 2, Shen teaches the claimed invention as described above except for the body that comprises a disc-shaped part.

In the same field of endeavor, Mattes teaches a body that comprises a disc-shaped part (20) for the benefit of producing a cheaper way to manufacture the actuator.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include body that comprises a disc-shaped part with Mattes device for the benefit described above.

16. Considering claims 3 and 12, Mattes teaches the body being a bolt-shaped body (abstract).

17. Considering claims 5 and 14, Mattes teaches the bolt-shaped body is spherically shaped on its shaft side (abstract).

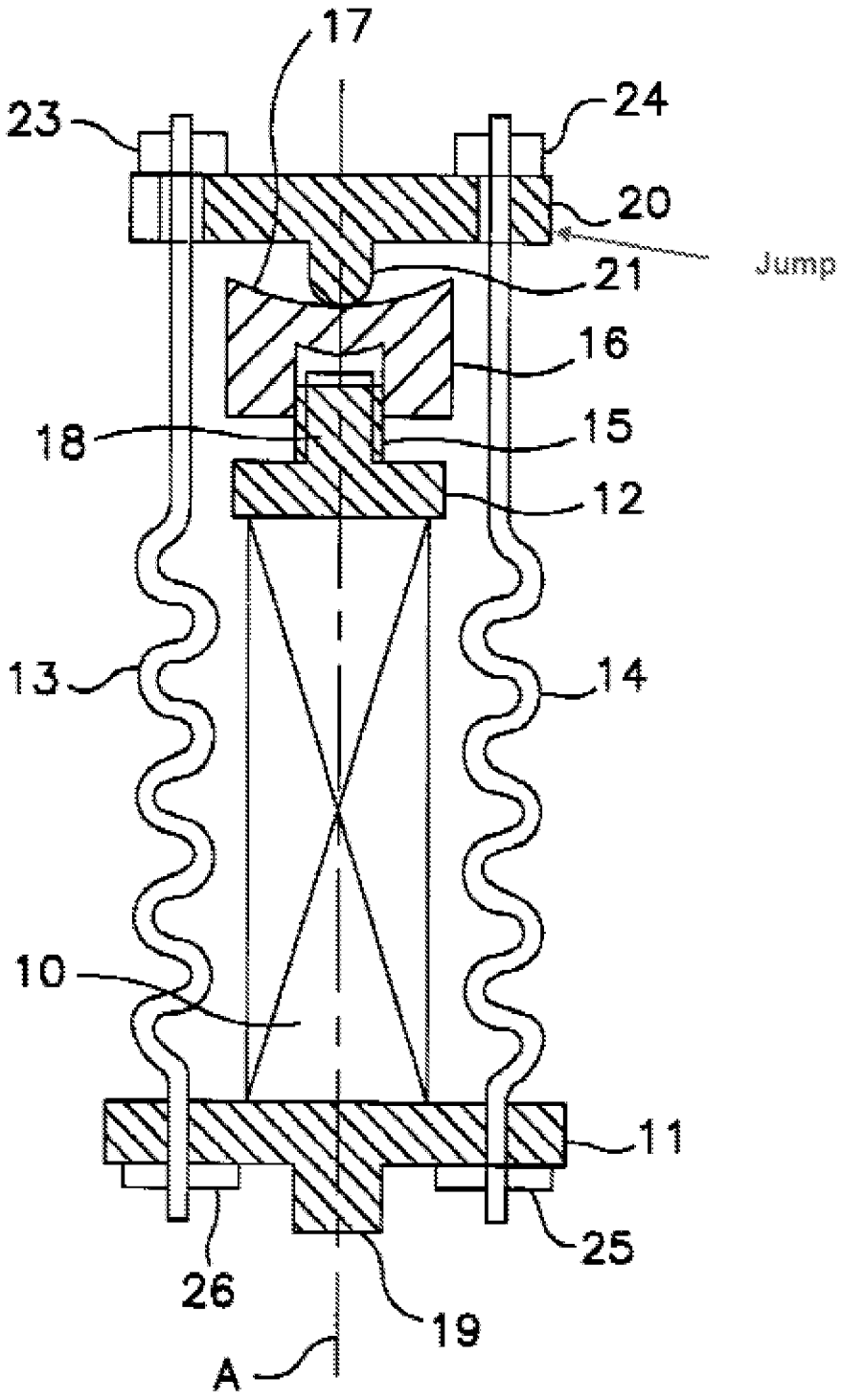

Figure C

18. Considering claims 6 and 15, Mattes (Figure C) teaches the tube-shape body has a jump in its diameter on its outer circumference.

19. Considering claims 7 and 16, it would be obvious to one of ordinary skill in the art to weld together the tube-shaped body and tube spring to assure a tight seal for the piezoelectric injector.

20. Considering claim 11, Shen teaches the claimed invention as described above in claim 10 except for the body that comprises a disc-shaped part.

In the same field of endeavor, Mattes teaches a body that comprises a disc-shaped part (20) for the benefit of producing a cheaper way to manufacture the actuator.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include body that comprises a disc-shaped part with Mattes device for the benefit described above.

21. Claims 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shen (US PN 6,499,471) and in view of Czimmek (PG Pub 20020056768).

22. Considering claims 7 and 16, Shen does not teach the tube-shaped body is joined to the tube spring by welding.

Czimmek teaches the tube-shaped body (104) is joined to the tube spring (106) by welding (paragraph 0032).

Therefore, it would have been obvious to have the tube-shaped body joined to the tube spring for the benefit of assuring a tight and protective seal.

Response to Arguments

23. Applicant's arguments filed 5 February 2010 have been fully considered but they are not persuasive. Regarding the argument that Shen does not teach a pretensioning means which physically compresses the piezoelectric actuator but not the tube spring the examiner is treating the tube spring as the pretensioning means. Therefore, the tube spring (17) of Shen does not pretension itself and Shen does meet the limitations of the applicant's claims. Regarding the new 112 rejection the examiner is not sure what the applicant is claiming. The applicant claims a means for pretensioning (tension) the actuator and it appears the means for doing that is a tube spring (although applicant also says the screw pretensions) which isn't compress from the pretensioning. How would a tube spring, which allegedly tensions the actuator, compress itself? To the examiner is not clear and clarification is required.

Conclusion

24. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

25. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRYAN P. GORDON whose telephone number is (571)272-5394. The examiner can normally be reached on Monday-Thursday 8:00-5:30, Friday 7:30-4:00.

27. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Benson can be reached on 571-272-2227. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

28. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bryan P Gordon/
Examiner, Art Unit 2834

/Walter Benson/
Supervisory Patent Examiner, Art Unit 2837